Original Article

Knowledge regarding COVID 19 among Registered Nurses of Pokhara, Nepal

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ABSTRACT

Background: Coronavirus disease is an emerging pandemic disease. The whole world is suffering from this disease these days. It is an acute respiratory disease in which transmission occurs essentially through respiratory droplets and this virus said to have 2-14 days of incubation. **Objective**: To assess their knowledge regarding COVID19 among registered nurses of Pokhara valley.

Methods: A descriptive cross-sectional study was performed with the help of the pretested and self-administered questionnaires to 750 registered nurses of Pokhara valley. Thus collected data was entered into SPSS version 20 and then further analyzed using R software. Frequency, percentages, the mean and standard deviation were calculated for the analysis. p-value was calculated where ever applicable to find the significance of data.

Results: The study disclosed that mass of the respondents had moderate proportion (44.8%) concerning understanding, followed by the respondents had a low level of knowledge (29.2%) and the rest of them (26.0%) had good knowledge about COVID 19.

Conclusion: Overall knowledge among nurses was found to be satisfactory as the disease is entirely new. Further research and updates on the diseases will help to profound knowledge among nurses.

Keywords: Coronavirus disease; COVID 19; Knowledge; Nurses; Nepal; Pokhara.

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INTRODUCTION

Coronavirus disease 2019 (COVID 19) is an arising and expeditiously emerging condition. It has become an exceedingly contagious infirmity lead by a novel virus related to a coronavirus family.It is said that the virus was seen in Wuhan, china in December[1]. Thereafter, it has worldwide expansion. WHO announced it as health emergency of global concern on January 30, 2020. It was declared pandemic on 11th march 2020[2]. Nepal identified its first case on January 23,2020[1]. Till 25th May 2020, globally 5,42,8017 people are infected among them 344,419 has died and 2,259,731 recovered. To date Nepal has detected 613 cases among them 3 has died[3]. It is acute respiratory disease in which transmission occurs essentially through respiratory droplets and this virus said to have 2-14 days of incubation. Their clinical course ranges from mild symptoms with fever and upper respiratory symptoms to developing into severe with pneumonia. It can extend up to critical life threatening complications such as ARDS, septic shock and organ dysfunction[4]. The infection control and preventive measures generally involve, hand hygiene, avoiding exposure to public places, quarantines, isolation and wearing suitable PPE. Diagnosis is confirmed with RT-PCR of SARS Cov -2 RNA preferably from the isolated patients' naso-pharyngeal swab[4].

Health service providers are more vulnerable to the exposure as they are directly involved in the pandemic response[5]. It is estimated that 90,000 health care workers are infected which includes doctors, nurses etc. More than 260 nurses had died. In Nepalese context 6 nurses are infected till date.[3] As Nepal is bordered by two highly populating countries there is high chances to have crisis situation .It is placed on 111th position out of 195 nations on the basis of Global Health Security Index(GHSI) 2019 and 150th place related to detection and reporting category. This placement clearly explains that it is a long distance away and not well prepared with the response strategy[6]. Preparation for the response is vital step to cope up effectively then dealing with actual health emergencies in the case of developing countries like Nepal[7]. Health care workers (HCWs) are the one who comes in direct contact with infected individuals so HCWs are more vulnerable for the exposure[2]. Readiness for combating with infectious diseases such as COVID 19 begins with good understanding, positive thinking and safe and better practices.Demented realization with dismissive frame of mind related to pandemic may results the unwanted situation which will scale the problems. So in the several instances, chaosity and confusion in the HCWs have retarded managing attempts for delivering essential interventions which will ultimately results vigorous transmission and place the patients at dangers[2].

There was quick spread of SARS in the China in the year 2002 to 2004 due to the misinterpretation, anxiety in the people as they followed limited the suggestive precautionary methods[8]. Shortage in the instruction and guidance to the common people as well as to the Health Service Provider regarding infectious disease may results global health emergency and urgency[9]. As the rate of infection is spreading vigorously among the nurses who are exposing to the COVID-19 patients to ease the outbreak management there is crucial demand of comprehensive knowledge and awareness regarding COVID 19 among the nurses. The main objective of the study is to assess the knowledge regarding COVID 19 among nurses.

MATERIALS AND METHODS

A cross-sectional, descriptive study was performed by using self administered questionnaire which was pretested and self-administered among available 750 registered nurses of Pokhara valley. All those nurses who agreed to give written consent were involved in the study.

A self-administered questionnaire consisted two parts, demographic information and knowledge related questionnaire. A set of 26 questions were asked to nurses to assess their knowledge regarding COVID 19. Questionnaires were collected by the nurses from their respective working hospitals and filled questionnaires were collected from reception of the hospitals on following day.

The data was entered in the SPSS version 20 and then further analyzed using R software. Frequency, percentages, mean and standard deviation was calculated for the analysis. P-value was calculated where ever applicable to find the significance of data. The knowledge related questionnaire had 26 questions. Every question had one correct and other incorrect answers (options).Score 1 was allocated to the correct response and 0 to the incorrect response. In case of multiple responses and subjective types, majority of the responses were considered correct or incorrect ones. The total knowledge scores were ranges from 0 to 26. The quartiles values were calculated from the

total knowledge score, if respondent got $\leq Q_1$ (=19) considered as poor knowledge, if they got score between greater than Q_1 to Q_3 (=23) categorized as moderate level of knowledge and if the respondents got $\geq Q_3$ (=23) were reviewed as the adequate knowledge about the COVID 19.

Permission to conduct study was taken from research committee of Charak Academy. The informed consent was taken in the written forms from all the participants. All participants were free to drop the study whenever they wanted. All the information collected was coded do that the confidentiality of respondents would be maintained.

RESULTS

Out of 759 total participants, more of the half (60.3%) respondents were equal or below 26 years. The median (±MAD) age of the respondent was 26(± 2.97) years. Among 750 respondents, majority of respondents (43.5%) had completed diploma level of education. Likewise, all of the respondents (100%) had heard about COVID 19. Among the 750 respondents heard about COVID 19 from different sources, but most common source was internet (99.1%). Considering the source of information radio and internet were strongly associated to the knowledge of the respondent (table 1).

Table 2 showed respondent opinion about COVID 19, more than half of respondents (65.5%) gave correct response about COVID19 on the question "which emerge suddenly and spread rapidly" similarly respondents provided correct response (96.3%) regarding spread globally. Likewise, nearly hundred percent of respondents had given correct response about organization that is WHO declared

COVID 19 as pandemic. Likewise, opinion about the types of corona virus has caused thousands of deaths around the world recently, more than (90%) of the respondent said correct answer. On the question about zoonotic disease (85.5%) responded correctly. Almost (70%) said that the main source of COVID 19 was animals (like bat), which was correct response. Exactly (97.7%) said a that1-14 day is the general ranges of incubation time. More than (60%) of the respondent said that COVID 19 was high risk to those persons had chronic medical illness history and older adults. Furthermore, almost (80%) of the respondents said that the major transmission among human to human occurs through respiratory droplets. Likewise, (64.8%) of the respondent told that the corona virus got its name due to their crown like projections and (93.3%) said that the ordinary symptoms of COVID 19 high temperature, difficulty in breathing and cough. Almost (100 %) told that the specimen/sample collected for the diagnosis of COVID 19 were Blood, nasal and throat swabs. Almost (90%) of the respondent told that Polymerase chain reaction (PCR) was the confirmatory test for COVID 19.

Exactly (82.3%) of the respondent COVID 19 is primarily prevented through hand hygiene and minimising contacts and (85.1%) of the respondent told that WHO recommended that people should wash their hands for at-least 20 seconds with water and soap. To slow the spread of COVID 19 almost (77%) told that there should be social distancing which includes all of minimizing contact, quarantines and travel restrictions. Most of the respondents (80.8%) said respiratory etiquette means covering nose and mouth and bending the elbow or using tissues during cough and sneeze.

Table 1: Socio-demographic status and response on COVID 19

Characteristics		n(%)	χ^2 value	p-value
Age(years)	Median±MAD			
	26	452(60.3)	22.047	<0.000***
	>26	298(39.7)		
Education Level	ANM	88(11.7)		
	Diploma	326(43.5)	1.444	0.4867
	Bachelor	308(41.1)		
	Masters	28(3.7)		
Heard about COVID 19	Yes	750(100)	NA	NA
Source of information#	Television	681(90.8)	2.705	0.2586
	Radio	430(57.3)	11.548	0.0031**
	Internet	743(99.1)	6.568	0.0375*
	Newspaper	304(40.5)	3.916	0.1411

#Multiple Response, NA: Not applicable

*, **, *** significant at 0.1%, 1%, and 5% respectively.

Table 2: Respondents opinion regarding COVID 19 (n=750)			
Respondents opinion on COVID 19	Correct Response (%)	Incorrect Response (%)	Mean±SD
• COVID 19 emerges suddenly and spreads rapidly	491(65.5)	259(34.5)	0.65±0.48
• COVID 19 spreads globally	722(96.3)	28(3.7)	0.96±0.19
• Organization that declared COVID19 as global health emergency	735(98.0)	15(2.0)	0.98±0.14
• Coronavirus has caused thousands of deaths around the world recently	703(93.7)	47(6.3)	0.94±0.24
• Meaning of zoonotic disease	641(85.5)	109(14.5)	0.85±.35
• Main etiological source of COVID 19	531(70.8)	219(29.2)	0.71±0.45
• Incubation period of COVID 19	733(97.7)	17(2.3)	0.98±0.15
• **High risk for severity of illness due to COVID 19**	515(68.7)	235(31.3)	0.69±0.46
• Major routes of transmission from human to human	597(79.6)	153(20.4)	0.80±0.4
• Coronavirus got its name from	486(64.8)	264(35.2)	0.65±0.48
• Most common symptoms of COVID 19	700(93.3)	50(6.7)	0.93±0.25
• Specimen/sample collected for the diagnosis of COVID 19	749(99.9)	1(0.1)	1.00±0.04
• Confirmatory test for COVID 19	668(89.1)	82(10.9)	0.89±0.31
• Immediate complication caused by COVID 19	667(88.9)	83(11.1)	0.89±0.31
• COVID19 is primarily prevented through	617(82.3)	133(17.7)	0.82±0.38
• WHO recommended that people should wash the hands with soap and water for minimum...seconds.	638(85.1)	112(14.9)	0.85±0.36
• Social distancing measures for COVID 19 are	580(77.3)	170(22.7)	0.77±0.42
• Respiratory etiquette includes	606(80.8)	144(19.2)	0.81±0.39
• Quarantine is separation and restriction of the movement of well person exposed to COVID 19.	212(28.3)	538(71.7)	0.28±0.45
• Health workers caring for the patients with COVID19 should wear PPE	698(93.1)	52(6.9)	0.93±0.25
• In emergency infectious disease like COVID 19 it is of the utmost importance that health care workers and public health agencies follows	503(67.1)	247(32.9)	0.67±0.47
• Personal protective equipment's includes	732(97.6)	18(2.4)	0.98±0.15
• Main purpose of personal protective equipment	269(35.9)	481(64.1)	0.52±0.50
• It doesn't matter in what order you remove PPE as long as you remove it and perform hand hygiene before going to care for another patient.	488(65.1)	262(34.9)	0.65±0.48
• If your hand is visibly soiled hand hygiene using alcohol based hand rub is the preferred method	486(64.8)	264(35.2)	0.65±0.48
• Immediate disinfection of articles and bodily discharge during the course of disease is called.	514(68.5)	236(31.5)	0.69±0.46

Nearly one third of the respondent (28.3%) said that separation and restriction of the movement of healthy persons who are exposed to communicable disease is known as quarantine and (93.1%) of the nurses said that health workers caring for the patients with COVID 19 should have all the body surface and clothes covered. In the emergency infectious disease like COVID 19, nearly (70%) of the respondent said that, it is of the utmost importance that health care workers and public health agencies follows the precautionary principle.

Nearly all the respondent (97.6%) of the respondent said that the personal protective equipment (PPE) includes all like mask, glove, gown etc. Only one third (35.9%) of the respondents were given correct response towards the purpose of PPE and (68.5%) of the respondent said that concurrent disinfection was the immediate disinfection of articles and bodily discharge during the course of disease.

Table3: Knowledge level of COVID 19 among the nurses (n=750)

Level of Knowledge	n (%)
Low(≤Q1)	219(29.2)
Moderate(>Q1 to <Q3)	336(44.8)
Good(≥Q3)	195(26)

The table 3 revealed the knowledge level about

COVID 19 among nurses, majority of respondents had moderate level (44.8%) of knowledge, followed by the respondents had a low level of knowledge (29.2%) and rest of them (26.0%) had good knowledge about COVID 19.

DISCUSSION

At present, COVID-19 is a worldwide concern of consultation among public, health care workers and patients. COVID-19 transmission is scaling up; creating massive stress to the government, public including all the medical personnel and systems. Among all the health care workers nurses are key persons to be the front liners for managing the cases. So we conducted this study to identify the nurses understanding about COVID-19 at the pandemic level.

In this study, more than half (65.1%) respondents were equal or below 26 years and rest of them (40.3%) was over 26 years. The median (±MAD) age of the respondent was 26 (± 2.97) years. Among 750 respondents, majority of respondents (43.5%) were completed diploma level of education following respondent (41.5%) were completed bachelor level of education and only rest of them (3.7%) were completed master level of educationn. Contradict to this findings a study conducted in Iran among Iranian nurses(n=85) where 56.3% nurses had obtained high school diploma and 67% of them were associates or bachelor degree holder, and 20% of them master degrees holder[10]. The slight difference in the findings might be due to different sample size, settings.

Likewise, all of the respondents (100%) heard about COVID 19.The respondents heard about Covid19 from different sources, but most important source was internet (99.1%) following television (90.8%), and heard from radio (57.3%) and newspaper (40.5%).This finding is somewhat similar to the findings of the study conducted in Nepal where usage of social media was (82.1%),TV/Radio was (9.5%) which was much lower than above findings[11].

This study revealed the majority of nurses working in Pokhara were having moderate knowledge (44.8%).This report was slightly lower than the study done among Iranian nurses where respondents had satisfactory knowledge (56%) (Iranian) and slightly higher than findings in the study done in Chinese health worker by Minghe jhou (n=631)where the value reported was 37.85 to 2.63[12]. Our findings were inconsistent to study done in Pakistan with health care workers (doctors, pharmacist, nurses)

where nurses had (91.4%). This variation might be due to unrelated settings, trainings and year of experience of the nurses[13]

In this study majority of the respondents (70.8%) said coronavirus has animal source. This answer is further assisted by the study done by zi-we Ye et al where it is stated that hcov infection is zoonosis[14]. Our findings are slightly higher than study done in Nepal with health care workers where (58.7%) respondents answered it correctly [15]. This slight difference in the value presented might be due to the study was done a bit earlier where the exact source was under investigation.

Regarding the incubation, (97.9 %) respondents reported correctly which is similar to limited extent in the study done in Nepal where (79.3%) reported it[11]. In our study (68%) participants said that chronic medical illness and older adults are at more risk of COVID 19.A research conducted in china with the patients identified people with co-morbid conditions such as hypertension, cardiovascular disorders, diabetes were at vulnerable for COVID 19 [16]. Our finding is close to the study done in Chinese residents where (73.2%) Chinese residents responded accurately[17]. The value is slightly underneath than the value reported by Ronald olum and et al where (80 %) [5]respondents reported sufficient knowledge on coronavirus disease.

Nearly fourth fifth (79.6%) respondents said respiratory droplets as major route of transmission whereas near to this findings study conducted among health care workers 89.2% of respondents reported similar answer[1].

Regarding most common symptoms (93.5%) of nurses said fever, cough and shortness of breath which is almost identical to the study conducted among public in Nepal where (92%) respondents reported similarity[11]. Much less to this finding only (73.2%) respondents reported the answer[15].

Vast majority (88.9%) of respondents said immediate complication which is modest increase than study done in Nepal where (77.9%) of respondents reported immediate complication[15]. The variation might be due to more information circulated about COVID 19 in recent days and more cases are reported.

The silent majority (82.3%) of respondents outlined the primary prevention, 88.8% of nurses delineated about meaning or respiratory etiquette which is consistent to the findings of the study conducted in Nepal where (85.6%) of participants proclaimed about respiratory hygiene and hand hygiene[15].

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Virtually (77.3%) tested stated about minimizing contacts, quarantines, and travel restrictions. A study conducted by Barabara et al said about the meaning of social distancing which included minimizing contacts, quarantines and travel restrictions. which is further more supported with the study[18]. Our observation was moderately lower than the results of the research conducted in Nepal in which (82.3%) reported the answer[11] and much lower to findings of the study done by Hussain et al where (97.9%) participants responded it[1]. This variation might be transpired due to in different sample size.

In the context of scientific prevention and benchmark particularly health care workers like nurses should have knowledge on the removal of personal protective equipment sequentially .While personal protective equipment are removed, precautions should be taken to prevent infection and contamination. In this study only (65.1 %) had knowledge on sequential removal of PPE which states the lack of effective information and trainings.

Due to limited availability of resources due to lockdown in Nepal we could not involve all the health care workers of Gandaki province. Also regarding intensive literature search, there was very little study done of similar nature till date. We tried to cover maximum out of that.

CONCLUSION

Overall knowledge related to disease burden, etiology, signs and symptom, incubation period, prevention techniques were found satisfactory among the nurses of Gandaki Province, as the disease is entirely new. Further research and updates on the diseases will help to profound knowledge among nurses.

Abbreviations

ARDS: Acute Respiratory Distress Syndrome; COVID-19: Corona Virus disease -19 ; COV-2 RNA: Corona Virus -2 Ribonucleic Acid; HCWs: Health Care Workers; MAD: Median Absolute Deviation; RT-PCR: Real Time Polymer-ease Chain Reaction; PPE: Personal Protective Equipment; SARS: Severe Acute Respiratory Syndrome; SPSS: Statistical Package for Social Science; WHO: World Health Organization

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